BRONSHTEN, V. A.

Atmospheric Physics, Scattering of Light (5546)
Byull. Vses. Astronomo-Geodez. Ob., No 14, 1953, pp 3-15
Bronshten, V. A.
Observation of the Brightness of the Sky During the Total Solar Eclipse of June 19, 1936.

Observations made by the society of Sagarchino (near Ak-Bulak) with six photometers of various construction were calibrated and plotted. The results agreed with the theoretical predictions by V. G. Fesenkov (cf. DAN, Vol 2, No 6, 1936 and Astron. Zh., Vol 29, No 6, 1952).

So: Moscow, Referativnyy, Zhurnal -- Fizika No 5, 1954 W-31059

BRONSHTEN, V.A.; BUGOSLAVSKAYA, Ye.Ya; BUGOSLAVSKAYA, N.Ya; VSEKHSVYATSKIY, S.K.; DAGAYEV, M.M.; LEPSKIY, M.M.; SIVKOV, S.I.; TER-OGANEZOV, V.T. MIKHAYLOV, A.A., redaktor; RAKHLIN, I.Ye., redaktor; TUMARKINA, N.A., tekhnicheskiy redaktor

[Solar eclipses and observations on the solar eclipse of June 30, 1954] Solnechnye zatmeniia i ikh nabliudenie; k solnechnomu zatmeniiu 30 iiunia 1954 g. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1954. 223 p. (MLRA 7:10)

1. Chlen-korrespondent AN SSSR (for Mikhaylov)
(Eclipses, Solar)

MIKHAYLOV, A.A.; BRONSHTEN, V.A., redaktor; MURASHOVA, N.Ya., tekhnicheskiy redaktor.

[Theory of eclipses] Teoriia zatmenii. Izd. 2-e, perer. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1954. 272 p. (MLRA 8:2)
(Eclipses)

BRONSHTEN, V.A.

Conference on planetary physics. Biul. VAGO no.15:56-58 '54.
(Planets)
(MIRA 8:4)

BRONSHTEN, V.A.

Taylor's comet (1916 I) Astron.tsir. no.149:2-3 My '54. (MLRA 7:7)
(Comet, Taylor's (1916 I))

BRONSHTEN, V. H.

USSR/Physics of the Atmosphere - Atmospheric Optics, M-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36200

Author: Bronshten, V. A.

Institution: None

Title: On the Formation of Silver Clouds

Original Periodical: Astronom. tsirkulyar, 1954, 11 June, 150, 16-17

Abstract: In the past, when considering the hypothesis by which the formation of silver clouds at heights of approximately 80 km is explained by the fact that it is indeed in this layer that the condition $E < p$ is observed, where E is the vapor tension of saturated steam and P is the atmospheric pressure at a given altitude (and it consequently becomes possible for the water vapors in the above layer to condense into drops and to form ice crystals), the data used pertained to average conditions. Using published data on the direct measurements of the temperature and air density at high altitudes, the author has found that the conditions in the air layer at altitudes

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USSR/Physics of the Atmosphere - Atmospheric Optics, M-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36200

Abstract: from 70 to 90 km can be quite different. The possibility of formation of silver clouds depends to a considerable extent on the temperature, which is subject to seasonal and annual fluctuations. It is noted that the previously stated hypothesis by the author concerning the role of meteoric particles as condensation nuclei in the formation of silver clouds has received a new confirmation in the work by E. Bowen (Referat Zhur - Fizika, 1954, 14093).

Card 2/2

BUGOSLAVSKAYA, Ye.Ya., predsedatel'; BRONSHTEN, V.A., chlen.

Observations of the solar eclipse of June 30, 1954, by sections of the All-Union Astronomical-Geodetic Society. Astron.tsir. no.151:17-19 Jl '54. (MLRA 8:3)

1. Komissiya VAGO po podgotovke k nablyudeniyam zatmeniya. (Eclipses, Solar—1954)

BRONSHTEN, V.A; STANYUKOVICH, K.P., doktor tekhnicheskikh nauk, redaktor; GOLUBKOVA, V.A., redaktor.

[The universe; a collection] Vselennaia; sbornik. Moskva, Gos. izd-vo kul'turno-prosvetitel'noi lit-ry, 1955. 404 p. (MLRA 9:4)
(Cosmology)

BRONSHTEN, V.A., redaktor; TSIKUL'NITSKIY, N.P., tekhnicheskiy redaktor

[1957 astronomical calendar for schools] Shkol'nyi astronomicheskii kalendar' na 1957 god. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR. No.7. 1956. 99 p. (MLRA 10:1)
(Astronomy--Yearbooks)

FEDYNSKIY, Vsevolod Vladimirovich; BRONSHTEN, V.A., redaktor; TUMARKINA, N.A., tekhnicheskiy redaktor

[Meteors] Meteory. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 109 p. (Populiarnye lektsii po astronomii, no.4) (MLRA 9:8)
(Meteors)

VORONTSOV-VEL'YAMINOV, Boris Aleksandrovich, professor; BRONSHTEN, V.A., redaktor; TSIRUL'NITSKIY, N.P., tekhnicheskiy redaktor

[Astronomy; a textbook for class 10 of the secondary school] Astronomiia; uchebnik dlia X klassa sredney shkoly. Izd. 10-oe, perer. i sokrashchen. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshchenila RSFSR, 1956. 143 p. (MLRA 9:9)
(Astronomy)

BRONSHTEN, V.A.

Second congress of the All-Union Astronomical-Geodetic Society.
Biul.VAGO no.17:3-13 '56. (MIRA 9:9)
(Astronomy--Congresses)

BRONSHTEN, V.A.

Conference on comet and meteor astronomy in Leningrad. Biul. VAGO no.19:66-73 '56. (MLRA 10:3)
(Comets) (Meteors)

BRONSHTEN, V.A.

Melting of the south polar snowcap of Mars in August-September, 1956.
Astron. tsirk. no.175:6-8 D '56. (MLRA 10:5)

1. Vsesoyuznoye astronomo-geodezicheskoye obshchestvo.
(Mars (Planet))

BRONSHTEN, V.A.

PHASE I BOOK EXPLOITATION 590

Bronshten, Vitaliy Aleksandrovich

Planety i ikh nablyudeniye (Planets and Their Observation) Moscow, Gostekhizdat, 1957. 206 p. 20,000 copies printed.

Ed.: Sytinskaya, N.N., Professor; Ed. (inside book): Samsonenko, L.V.; Tech. Ed.: Brudno, K.F.

PURPOSE: The book is designed as a manual for the amateur astronomer interested in a systematic observation of the planets. It asumes a knowledge of astronomy, physics and mathematics on the level of the graduate of a Soviet secondary school.

COVERAGE: The book describes each one of the planets except the Moon (for which the reader is referred to N.N. Sytinskaya's Luna i yeye nabludeniya (Gostekhizdat, 1956)) and outlines modern methods of planet study. It provides directions on how to carry out scientific observations by means available to the amateur astronomer, and how to interpret and process the phenomena observed to

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obtain scientifically valid information. The book does not concern itself with the origin and development of the planets. Each chapter is accompanied by a bibliography, and tables and coordinate grids are provided at the end for processing planet diagrams. A table referred to as the "planet-finder" makes it possible to determine the position of any of the five brighter planets within the next few years. The author expresses his gratitude to advisers, such as Academician N.P. Barabashov, Professor V.V. Sharonov, and the scientific editor of this book, Prof. N.N. Sytinskaya. There are 66 diagrams, drawing, and photographs illustrating the text.

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BRONSHTEN, V.A.

Observations of Mars in August-September, 1956, by the expedition of the All-Union Astronomical and Geodetic Society; first report. Astron. tsir. no.177:5-7 F '57. (MLRA 10:6)
(Mars (Planet))

BRONSHTEN, V. A.

BRONSHTEN, V.A.

Observations of Mars by the VAGO Expedition in August-September 1956.
Astron.tsir. no.178:10-11 Mr '57. (MLRA 10:9)
(Mars (Planet))

BRONSHTEN, V.A.

Observations of Mercury's transit across the sun's disk on May 6, 1957, in Moscow. Astron.tsir. no.184:10-11 S '57. (MIRA 11:4)

(Mercury (Plant), Transit of)

BRONSHTEN, V.A.

Observations of the total lunar eclipse of May 13-14, 1957. Astron. tsir. no.184:14-16 S '57. (MIRA 11:4)
(Eclipses, Lunar--1957)

BRONSHTEN, B.A.

Possibility of formation of icy clouds in Mars' atmosphere. Astron. tsir. no.184:19-21 S '57. (MIRA 11:4)
(Mars (Planet))

KULAGIN, S.G.; KOVBASYUK, L.D.; DAGAYEV, M.M.; ROZENBLYUM, N.D.; YEGORCHENKO, I.F.(Irkutsk); KAVERIN, A.A. (Irkutsk); KONSTANTINOVA, T.G. (Irkutsk); KUKLINA, V.A. (Irkutsk); KUKLIN, G.V. (Irkutsk); SAZONOVA, Z.G., (Irkutsk); CHERNYKH, L.I. (Irkutsk); CHERNYKH, N.S. (Irkutsk); DEMIDOBICH, Ye.G.; BRONSHTEN, V.A.; YAKHONTOVA, N.S. (Leningrad); PEROVA, N.B.; DOKUCHAYEVA, O.D.; KATASEV, L.A.; KLYAKOTKO, M.A.; PARENAGO, P.P.; SHCHERBINA-SAMOYLOVA, I.S.; MASKVICH, A.G.; RYABOV, Yu.A.; SHCHEGLOV, V.P.; PEKEL', Yu.G.; MARTYNOV, D.Ya.; FEDYNSKIY, V.V.; VORONTSOV-VEL'YAMINOV, B.A.; ZIGEL', F.Yu.; BAKULIN, P.I., otv.red.; RAKHLIN, I.Ye., red.; AKHLAMOV, S.N., tekhn.red.

[Astronomical calendar] Astronomicheskii kalendar'. [A yearbook; variable section for 1959] Ezhegodnik. Peremennaia chast', 1959. Red.kollegiia P.I. Bakulin i dr. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1958. 370 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no.62) (MIRA 12:2)

1. Gosudarstvennoye astronomo-geodezicheskoye obshchestvo (for Kulagin, Kovbasyuk, Demidovich). 2. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva (for Dagayev, Rozenblyum, Bronshten, Perova).

(Astronomy--Yearbooks)

DAGAYEV, M.M.; ZIGEL', F.Yu., kand. ped. nauk; LARIONOV, A.P.; PORTSEVSKIY, K.A.; SHISHAKOV, V.A., kand. ped. nauk; BRONSHTEN, V.A., red.; KAVERIN, A.A. (Irkutsk); TSIKUL'NITSKIY, N.P., tekhn. red.

[1958 astronomical calendar for schools] Shkol'nyi astronomicheskii kalendar' na 1958 god. Moskva, Gos. uchebno-pedagog. izd-vo M-va prosv. RSFSR. No.8. 1958. 120 p. (MIRA 11:7)

1. Starshiy prepodavatel' Moskovskogo gorodskogo pedagogicheskogo instituta imeni V.P. Potemkina (for Dagayev). 2. Lektor Moskovskogo planetariya (for Larionov, Portsevskiy).

(Astronomy--Yearbooks)

ASTAPOVICH, Igor' Stanislavovich; BRONSHTEN, V.A., red.; AKHLAMOV, S.N., tekhn.red.

[Meteors in the earth's atmosphere] Meteornye iavleniia v atmosfere zemli. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1958. 640 p. (MIRA 12:4)

(Meteors)

BRONSHTEYN, V. A.

Noctilucent clouds. IUn. tekh. 2 no.5:60-61 My '58. (MIRA 11:6)
(Cloud)

"Results of Photographic Photometry of the Bright Region Argir on Mars."

resented at the Plenary Meeting of the Committee of Planetary Physics
of Astronomers, Khar'kov, 20-22 May 1958.
Nauk SSSR, 1958, No. 8, pp. 113-114)

BRONSHTEN, V.A.

Visual observations of Mars during the favorable opposition of 1956. Biul. VAGO no.22:3-11 '58. (MIRA 11:6)

1.Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.

(Mars (Planet)--Opposition, 1956)

AUTHOR: Bronshten, V.A. and Zotkin, I.T. 33-35-3-24/27

TITLE: The Seventh Full Assembly of the Commission "Comets and Meteors" of the Astronomical Council of the Academy of Sciences of the USSR (VII plenum komissii po kometam i meteoram astronomicheskogo soveta akademii nauk SSSR)

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 3, pp 503-506 (USSR)

ABSTRACT: The seventh full assembly of the commission "Comets and Meteors" took place May 13 - 17, 1957 in Odessa. The participating organizations were: 1. The Astronomical Assembly of the Academy of Sciences of the USSR 2. The Committee for Meteorites of the Academy of Sciences of the USSR 3. TheAstronomical Main Observatory of the Ukrainian SSR (Kiyev) 4. Astrophysical Laboratory of the Institute for Physics and Geophysics of the Academy of Sciences of the Turkmenian SSR (Ashkhabad) 5. Astronomical Observatory of the Academy of Sciences of the Tadzhik SSR(Stalinabad) 6.Astronomical Observatory imeni Engel'gardt (Kazan') 7. Problem-Radiolaboratory of the Kazan' University 8. Institute for Theoretical Astronomy of the Academy of Sciences of the USSR (Leningrad) 9. Observatory of the Kiyev University. 10. Observatory of the Odessa University 11.-13. Chairs of Astro-

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The Seventh Full Assembly of the Commission "Comets and Meteors"

nomy at the Universities Kiyev, Odessa, Ural 14. Chair of Radiotechnics at the Khar'kov Polytechnical Institute 15. Chair of Construction of Radio equipment at the Tomsk Polytechnical Institute 16. Odessa Pedagogical Institute 17. Kiyev Polytechnical Institute. 18. Central Council of the All-Union Astronomic-geodetic Society and their Moscow, Odessa, and Simferopol Sections 19. Representatives of the Astronomical Institute of the Czecho-Slovakian Academy of Sciences Zd. Tseplekha.

9 general meetings and 5 sectional meetings took place. The following principal questions formed the order of the day of the full assembly.

1.) Preparation of the scientific research organizations for the performance of observations in the next geophysical year.

2.) Scientific problems and theory of method of the radio observations of meteors.

3.) Preparation of the discussion on the origin of comets on the occasion of the meeting 1958.

63 lectures given in the general meetings and sectional meetings are mentioned in the report.

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The Seventh Full Assembly of the Commission "Comets and Meteors" 33-35-3-24/27

The presidency of the commission "Comets and Meteors" was confirmed as follows:

1.) Chairman : Professor V.V. Fedynskiy
2.) Deputy of the chairman : Dotsent K.V. Kostylev, Doctor of physical-mathematical Sciences S.M. Poloskov
3.) Scientific Secretary : I.T. Zotkin

SUBMITTED: January 25, 1958

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PHASE I BOOK EXPLOITATION SOV/3651

Vsesoyuznoye astronomo-geodezicheskoye obshchestvo

Astronomicheskiy kalendar' 1960 (Astronomical Calendar, 1960) Moscow, Fizmatgiz, 1959. 351 p. (Series: Its: Yezhegodnik; peremennaya chast', vyp. 63) 7,200 copies printed.

Ed.: I.Ye. Rakhlin; Tech. Ed.: S.N. Akhlamov; Editorial Board: P.I. Bakulin (Resp. Ed.), M.M. Dagayev, S.G. Kulagin, A.G. Masevich, P.P. Parenago.

PURPOSE: The book is intended for astronomers and geophysicists and physicists interested in astronomical phenomena.

COVERAGE: This yearbook on astronomy was compiled by a number of Soviet scientists specializing in several different branches of astronomy. The following persons participated in the work: L.D. Kovbasyuk, who wrote the chapters on ephemerides of the Sun and Moon; M.M. Dagayev, the chapters on planets, eclipses, physical coordinates of the Sun, Moon, Mars, and Jupiter, and the satellites of Jupiter and Saturn; V.S. Lazarevskiy, the chapters on ephemerides and heliocentric longitudes of planets; Ye.G. Demidov, the chapters on occultation of stars and planets by the Moon, observations of Polaris and computation of coor-

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dinates of stars; V.A. Bronshten, the chapters on comets; N.S. Yakhontova, sections on minor planets; and N.B. Perova, the chapters on variable stars. The appendixes contain articles on recent developments and events in astronomy such as the launching of the first Soviet space rocket, the 10th Congress of the International Astronomical Association held in Moscow in August 1958, developments in astronomy in 1958 during the IGY. There are 385 references, all Soviet.

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Perel', Yu.G. Anniversaries in Soviet and World Astronomy in 1960 313

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AVAILABLE: Library of Congress

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S/269/63/000/002/029/037
A001/A101

AUTHORS: Bronshten, V. A., Dluzhnevskaya, O. B.

TITLE: Photographic photometry of the bright region Argyre on Mars at the end of Autust 1956

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 2, 1963, 64, abstract 2.51.505 (In collection: "Rezul'taty nablyudeniy Marsa vo vremya velikogo protivostoyaniya 1956 g. v SSSR", M., AN SSSR, 1959, 188 - 194)

TEXT: An expedition of VAGO photographed Mars from August 4 to September 16, 1956, at the observatory of the Volgograd planetarium with a 300-mm Zeiss refractor; a "Zenit" camera with ocular magnification (F_{equ} = 40 m) was used with Panchrom films through five light filters with λ_{eff} = 630, 610, 590, 549 and 493 mμ. Sixty photographs with good image of the Argyre I region were selected, some of which are reproduced in figures. The films were measured on a МФ-4 (MF-4) microphotometer, blackening was measured at two points: in the Argyre region and in the northern continent at the same distance from the limb.

Photographic photometry of the...

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A001/A101

The variation with time of the ratio of Argyre brightness to that of the northern continent is shown by curves; a strong increase of Argyre brightness is seen in red and yellow light which, in the authors' opinion, is explained by a dust cloud with particle dimensions of 0.4 - 1 μ, strongly scattering long-wave rays. The change in color of the Argyre region was studied by means of a special color index "red minus green"; the course of variation presented in a graph shows that the Argyre region remained yellowish with respect to the white screen during the entire time of observations. There are 7 references.

I. Lebedeva

[Abstracter's note: Complete translation]

Card 2/2

29(1,2) SOV/47-59-2-2/31

AUTHOR: Bronshten, V.A.

TITLE: The First Flight of a Rocket Into the Cosmos (Pervyy polet rakety v kosmos)

PERIODICAL: Fizika v shkole, 1959, Nr 2, pp 5-8 (USSR)

ABSTRACT: On 2 January 1959, a cosmic rocket was launched in the Soviet Union in the direction of the moon. Its last stage weighed 1,472 kg without fuel, and the initial velocity, exceeding 11.2 km/sec, was sufficient to overcome gravity. The rocket was furnished with apparatus for studying the cosmic rays outside the magnetic field of the earth, the solar corpuscles, meteoric particles, the density of the interplanetary gas and for discovering the magnetic field and radioactivity of the moon. Observations of the artificial comet on the morning of 3 January helped to establish the exact position of the rocket in space. The author deals only with questions appertaining to the movement of the rocket. At 6 o'clock on 4 January it reached the lunar orbit, passing the moon's surface at a distance of 5,500 km. Its velocity was then approximately 2.5 km/sec. For 28 hours after crossing the lunar

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orbit it was possible to receive very valuable information from the apparatus on the rocket. On 7 January it entered the heliocentric orbit, along which it moves at present and will move for an indefinite time. By means of a diagram the author shows the movement of the rocket from 2 to 7 January. The diagram indicates the trajectory of the rocket and the lunar orbit. With the help of formulae he explains how the rocket's velocity changed on the first section of the flight, and how the movement of the rocket was influenced by the gravity of the moon. He further describes how the rocket got into the heliocentric orbit and how it will move in the future. Diagram 2 indicates the orbits of the earth, Mars and the rocket, and shows that at first it will outstrip the earth because of the great velocity in the perihelion, but later (owing to the distance from the sun) earth will again come up with the rocket and out-distance it on about 27 April 1959. The distance between the earth and the rocket will be very great at that time. The author also examines

the question of whether the rocket will meet the earth again and proves that there will be three close approaches in 1975, 2028 and 2044.

ASSOCIATION: Moskovskiy planetariy (Moscow Planetarium)

3 1556

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, [illegible] (USSR)

AUTHOR: Bronshten, V.A.

TITLE: On the Possibility of Ice Cloud Formations in the Atmosphere of Mars

PERIODICAL: Astron. tsirkulyar, 1957, Sept. 7, 1959, No. 194, pp. 14 - 15.

ABSTRACT: From the condition needed for ice crystals from vapor, through the condensation of water vapor, $q_0 > E$ (p - atmospheric pressure, E - the pressure of saturated vapor at temperature T, q - the [illegible] of water vapor), and from Dunham's estimate of the upper limit of water vapor content in the atmosphere of Mars, I obtained that the formation of ice clouds in the atmosphere of Mars is possible when $p/p_0 \geq 10^{-3}$. The values of E and P/E are calculated as functions of height, according to data given by A.I. Lebedinskiy (PZhAstr. 1957, No 7, 3856) and Kuiper. Under the assumption of water vapor distribution according to the barometric formula, it was shown that ice clouds in the Martian atmosphere cannot form at a height lower than 20 km, but at [illegible]

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On the Possibility of Ice Cloud Formations in the Atmosphere of Mars

water vapor heigher than 20 - 25 km is sufficient for their formation. The effect is being discussed of the deviations of H_2O distribution from the barometric formula on the result.

V.A.B.

Card 2/2

KOZIK, S.M.; BRONSHTEN, V.A., otv.red.

[Catalog and schematic map of selected lunar features for the full moon] Katalog i skhematicheskaia karta izbrannykh lunnykh ob"ektov dlia polnoluniia. Moskva, Izd-vo Akad.nauk SSSR, 1960. 30 p. (MIRA 13:9)

(Moon--Surface)

MIKHAYLOV, A.A., otv.red.; MARTYNOV, D.Ya., doktor fiz.-mat.nauk, zam.otv. red.; DURNEV, A.I., doktor tekhn.nauk, red.; SOLOV'YEV, M.D., doktor tekhn.nauk, red.; POPOV, P.I., prof., red.; PARENAGO, P.P., red. [deceased]; FEDYNSKIY, V.V., doktor fiz.-matem.nauk, red.; BAZYKIN, V.V., red.; BRONSHTEN, V.A., red.; SAMSONENKO, L.V., red.izd-va; LEBEDEVA, L.A., tekhn.red.

[Proceedings of the Second Congress of the All-Union Astronomical Geodetic Society] Trudy Vtorogo s"ezda Vsesoiuznogo astronomo-geodezicheskogo obshchestva. Moskva, Izd-vo Akad.nauk SSSR, 1960. 151 p. (MIRA 14:2)

1. S"yezd Vsesoyuznogo astronomo-geodezicheskogo obshchestva. 2d, Leningrad, 1955. 2. Chleny-korrespondenty AN SSSR (for Mikhaylov, Parenago). (Astronomy, Spherical and practical--Congresses) (Geodesy--Congresses)

BRONSHTEN, V.A.; BUGOSLAVSKAYA, Ye.Ya.; BUGOSLAVSKAYA, N.Ya.; VSEKHSVYATSKIY, DAGAYEV, M.M.; LEPSKIY, M.M.; MIKHAYLOV, A.A.; SIVKOV, S.I.; TER-OGANEZOV, V.T.; RAKHLIN, I.Ye., red.; MURASHOVA, N.Ya., tekhn.red.

[Solar eclipses and observations of them] Solnechnye zatmeniia i ikh nabliudeniia. Sost.V.A.Bronshten i dr. Pod red. A.A.Mikhailova. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1960. 237 p.
(MIRA 14:1)

1. Vsesoyuznoye astronomo-geodezicheskoye obshchestvo. 2. Chlen-korrespondent AN SSSR (for Mikhaylov).
(Eclipses, Solar)

PHASE I BOOK EXPLOITATION SOV/4313

Barabashov, N.P., V.A. Bronshten, M.S. Zel'tser, N.L. Kaydanovskiy, A.V. Markov, K.P. Stanyukovich, N.N. Sytinskaya, A.V. Khabakov, Sh.T. Khabibullin, V.V. Sharonov, and A.A. Yakovkin

Luna (The Moon) Moscow, Fizmatgiz, 1960. 384 p. 4,500 copies printed.

Ed.: (Title page): A.V. Markov, Doctor of Physics and Mathematics; Ed.: G.A. Manova; Tech. Ed.: N.Ya. Murashova.

PURPOSE: This book is intended for astronomers, astrophysicists, and other scientific and technical personnel interested in lunar research.

COVERAGE: The book, written by 11 Soviet authorities, summarizes and evaluates research done to date in selenology. The motion, rotation, and figure of the Moon, physical properties of the lunar surface, the question of the existence of lunar atmosphere, mapping of the Moon, radar investigations, and the effect of external cosmic forces on the Moon are discussed. An index of Russian and Latin designations of lunar features is included. The text is illustrated with 110 figures and 32 tables. There are 74 references: 34 Soviet, 32 English, 6 German, and 2 French.

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The Moon

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AVAILABLE: Library of Congress (QB 581.M3)

BRONSHTEN, V. A. and STANYUKOVICH, K. P.

Formation of Lunar Craters and Bright Rays as a Result of Meteorite Impacts.

report presented at the International Symposium on the moon, held at the Pulkovo Observatory, Leningrad, USSR, 6-8 Dec 1960.

S/035/62/000/005/004/098
A055/A101

AUTHOR: Bronshten, V. A.

TITLE: Organization of the scientific research in astronomy in the various VAGO branches

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 5, abstract 5A22 ("Tr. 2-go s"yezda Vses. astron.-geod. o-va, 1955". Moscow, AN SSSR, 1960, 131 - 133. Discuss. 137 - 139)

TEXT: The problems and forms of the VAGO astronomical research work are formulated. The work of the observers of the Moscow branch of VAGO is recorded as regards the study of meteors, variable stars, noctilucent clouds, planets, the Sun and of eclipses. Is also recorded the work of the Simferopol', Kuybyshev and other VAGO branches, the Gor'kiy latitude station and of the VAGO expeditions for observing solar eclipses. In an appendix are recorded the successful observations of Mars, in 1956, by the VAGO expedition to Volgograd, as well as the observations of meteors and noctilucent clouds by many of the VAGO branches, carried out according to the 1957 - 1959 International Geophysical Year program. The

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Organization of the...

necessity is stressed of creating people's observatories and of equipping the VAGO branches with instruments. Eleven persons took part in the discussion. The various speeches are briefly summed up.

V. B.

[Abstracter's note: Complete translation]

Card 2/2

S/035/61/000/012/020/043
A001/A101

AUTHORS: Bugoslavskaya, Ye.Ya., Bronshten, V.A.

TITLE: Study of solar corona

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 12, 1961, 62, abstract 12A494 (V sb. "Solnechn. zatmeniya i ikh nablyudeniya", Moscow, Fizmatgiz, 1960, 151 - 170)

TEXT: The following subjects of studies are described in detail, which can be conducted by amateurs of astronomy during eclipses: study of the structure of the outer corona (visually and photographically), study of the microstructure of the corona's various parts (visually), determination of integrated brightness of the corona, surface photometry of the corona, colorimetry of the corona.

I. S. Shch.-S.

[Abstracter's note: Complete translation]

Card 1/1

23407
S/169/61/000/007/060/104
A006/A101

3,5150

AUTHORS: Bronshten, V.A., Dagayev, M.M.

TITLE: Studies on atmospheric optics

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 7, 1961, 43, abstract 7B287 (V sb. "Solnechn. zatmeniya i ikh nablyudeniya", Moscow, Fizmatgiz, 1960, 171 - 190)

TEXT: General information is given on the lighting conditions during a total solar eclipse including indications for the observation of sky brightness during the eclipse. The following subjects are recommended for studies: distribution of brightness over the sky; distribution of brightness along the Sun vertical; observation of the brightness of the glow corona; observation of the aureole around the Sun, and the observation of moving shadows. The authors describe the design of a number of photographic photometers for the performance of the first three tasks: the Fesenkov photometer, the vertical photometer and the Dagayev glow photometer. All these types of photometer make it possible to obtain simultaneous exposures of many celestial points (the Sun vertical, the glow corona) on one plate or film.

V. Bronshten

[Abstracter's note: Complete translation]

Card 1/1

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7537
SOV/29-60-1-13/25

AUTHOR: Bronshten, V.

TITLE: The Flight-paths of Interplanetary Vessels

PERIODICAL: Tekhnika molodezhi, 1960, Nr 1, pp 14-15 (USSR)

ABSTRACT: In this article the author discusses future flights to Mars and Venus. The time needed for a flight to Mars may vary. This depends on starting speed and on the flight path. From the point of view of lower fuel consumption, a semielliptic flight path appears to be the most suited. Launching speed in this case would have to amount to 11.59 km/sec. A flight on a semielliptic flight path would take 259 days. On a parabolic flight path with a launching speed of 16.7 km/sec 70 days would be necessary. In this case, considerable difficulties would arise in landing because of the high landing speed, for in this case the speed would be 20.9 km/sec, and slowing down such a speed would require great quantities of fuel. For the purpose of calculating flight paths the heliocentric speed (referred to the Sun) must be known, for it determines the shape of the flight path and the duration of the flight.

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For the purpose of calculating fuel consumption planetocentric speeds (referred to the planets) during start and arrival must be known. Further, the mutual position of Earth and Mars must be taken into account. In a flight to Mars along a semielliptic flight path the most favorable opportunity of starting a return flight to the earth would occur only after the elapse of 15 months. Thus, such a flight to Mars and back would take 2 years and 8 months. Although atmospheric density on Mars amounts to only a twelfth part of that of the Earth, this density decreases much more slowly with altitude than on the Earth. Therefore, slowing down of the rocket must begin much earlier before landing on Mars. According to astronomic data the atmosphere of Mars is not suited for breathing, nor was it hitherto possible to detect the presence of oxygen. However, it does not seem to be impossible that oxygen might be produced chemically from minerals. The red color of minerals indicates an iron oxide content. Astronauts would be able to find water supplies at the poles. The white spots indicate that the poles are covered with ice. During the first time, astronauts would have to live in the rocket, and later in hermetically sealed dwellings with an artificial climate. A sojourn in the open

would be possible in space suits. A flight to Venus on a semi-elliptic flight path at a starting speed of 11.48 km/sec would take 146 days. The most favorable opportunity for a return-flight would occur after 467 days. Thus, a flight to Venus and back would take more than 2 year. A flight on a parabolic flight path would take only 35 days, but the return-flight could be expected only after the elapse of 490 days. Starting- and landing-speed would in the first case amount to 10.7 km/sec, and in the second, to 17.8 km/sec. A flight to Mercury would be dangerous because of the very high temperatures near the Sun. On more distant planets, beginning from Jupiter, temperatures are, however, too low (less than -100^{0}). Furthermore, flights to these planets, even on a parabolic flight path and only in one direction, would take between 1 and 19 years. Besides, landing on Jupiter and Saturnus would be rendered very difficult because of the attractive power of these planets. Nevertheless, it does not seem impossible to effect a landing on their moons. There is 1 figure.

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A005/A001

3.1800 (1041, 1062, 1168)
9.9840

Translation from: Referativnyy zhurnal, Geofizika, 1960, No. 12, pp. 245-246,
16446

AUTHOR: Bronshten, V. A.

TITLE: On the Nature of Noctilucent Clouds

PERIODICAL: V sb.: Nekotoryye probl. meteorol.. No. 1,Moscow, AN SSSR, 1960, pp. 120-123

TEXT: Any hypothesis of the origination of noctilucent clouds must explain the following facts observed: 1) the constance of the altitude of noctilucent clouds (about 82 km); 2) the latitudinal range of the zone of their occurrence (about 45-65°); 3) the seasonal range of their visibility; 4) the fine structure of noctilucent clouds similar to the structure of cirrous clouds; 5) the connection of the appearance of noctilucent clouds with the meteorological conditions in the troposphere; 6) the peculiarities of the spectrum of noctilucent clouds. In view of the facts mentioned, the hypothesis of dust origination of noctilucent clouds faces some objections. To explain the accumulation of these particles just at the altitude of 82 km, a decrease of their falling rate at this

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A005/A001

On the Nature of Noctilucent Clouds

altitude must be assumed which cannot take place. From the standpoint of the meteor hypothesis, the greatest quantity of meteor dust should accumulate at the equator, but as is known, noctilucent clouds are not observed at all in latitudes up to 45°. Analogous reasoning can be applied also to the seasonal range of the visibility period of noctilucent clouds. If the noctilucent clouds are caused by meteor dust, they were observed more frequently after great meteor streams which does not take place. Dust accumulations cannot produce the fine structure observed in noctilucent clouds. The dust hypothesis cannot explain the peculiarities of the noctilucent cloud spectrum and the connection with the phenomena in the troposphere. [illegible] explained from the viewpoint of the condensation hypo-

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A005/A001

On the Nature of Noctilucent Clouds

in the medium latitudes of the USSR in summer time conditions can exist for the origination of ice crystals at the 80-85-km altitude. The fluctuations of vapor concentration and temperature change can explain the lowfrequency of the noctilucent cloud phenomenon. A comparison of the data of IAG and NRL, which were obtained at different latitudes, indicates the real latitudinal difference of the minimum temperatures at the 80-km altitude. In analogous manner, the seasonal effect can be explained. The cosmic dust may serve in the origination of noctilucent clouds as condensation nuclei furthering the formation of ice crystals.

L. V. Yerasova

Translator's note: This is the full translation of the original Russian abstract.

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BRONSHTEN, V.A.; CHISTYAKOV, V.F.

Origin of lunar craters with rays. Biul.VAGO no.26:15-21 '60. (MIRA 13:10)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.

(Moon--Surface)

BRONSHTEN, V.A.

Structure of the far outer corona of June 19, 1936. Biul.VAGO no.27:3-9 '60. (MIRA 13:6)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva i Moskovskiy planetariy.
(Sun--Corona)

PEREL', Yu.G.; POPOV, P.I.; MARTYNOV, D.Ya.; KUNITSKIY, R.V.; VORONTSOV-VEL'YAMINOV, B.A.; BAZYKIN, V.V.; KULIKOV, K.A.; SHISTOVSKIY, K.N.; TSVETOV, R.I.; BRONSHTEN, V.A.; DAGAYEV, M.M.; MOGILKO, A.D.; SEMAKIN, N.K.; DMITRIYEV, L.S.; IZOTOV, A.A.

Mihail Evgen'evich Nabokov; obituray. Buil.VAGO no.28:60-62 '60. (MIRA 14:6)
(Nabokov, Mikhail Evgen'evich, 1887-1960

BRONSHTEN, V.A.; NOVIKOV, I.D.

Flight to the stars. Nauka i zhizn' 27 no. 4:58-64 Ap '60.
(MIRA 14:5)

1. Chleny soveta Moskovskogo otdeleniya Vsesoyuznogo astronomo-geodezicheskogo obshchestva.
(Space flight)

BRONSHTEN, Vitaliy Aleksandrovich; SHARONOV, V.V., otv.red.

[Instructions for observing planets] Instruktsiia dlia nabliudeniia planet. Moskva, Izd-vo Akad.nauk SSSR, 1961. 32 p. (MIRA 14:4)

(Planets--Observations)

BRONSHTEYN, V.A.

On the problem of the motion in the atmosphere of the Tungussk Meteorite.

40

"METEORITKA" (Meteorites-Studies) Issue no. 20 - 1961, sponsored by the "Committee on Meteorites" of the Soviet Academy of Sciences - Moscow - 1961, 208 pages, and containing Collected Works("Trudy") of the "9th Meteorite Conference Organized by the Committee on Meteorites of the Soviet Academy of Sciences" and Held in KIEV on 2-4 June 1960.

PHASE I BOOK EXPLOITATION SOV/5818

Broushten, V.A., comp.

Atlas risunkov Marsa (Atlas of Sketches of Mars) Moscow, Izd-vo AN SSSR, 1961. 117 p. 2000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Vsesoyuznoye astronomo-geodezicheskoye obshchestvo.

Resp. Ed.: N.P. Barabashov, Academician, Academy of Sciences UkrSSR; Tech. Eds.: K.A. Kolokol'nikov and S.P. Golub'.

PURPOSE: This atlas is intended for astronomers, especially for those specializing in the study of the planet Mars.

COVERAGE: The atlas contains 474 selected sketches of the planet Mars made by Soviet observers during the opposition of 1956. Probably the first collection of its kind, the atlas was published in accordance with the desires of the Komissiya po fizike planet Astrosoveta AN SSSR (Committee on the Physics of the Planets of the Council on Astronomy AS USSR) and the Vsesoyuznoye astronomo-

Card [redacted]

geodezicheskoye obshchestvo (All-Union Society of Astronomy and Geodesy). The criterion governing the selection of sketches was that they give some idea of the nature of the details observed on Mars. The sketches themselves, accompanied by footnotes identifying them as to universal time of observation, observer, diameter of the reflector, type of filter used, the institute or observatory of origin (in abbreviation), quality of the image, etc., constitute Part I of the atlas. Part II consists of the observers' notes on the individual sketches. A grid on tracing paper for measuring the visible coordinates of the sketch details was prepared by G.N. Kotyleva for an inclination of + 19.5° of the Mars axis to the surface of the map [sketch] and accompanies the Atlas as an insert. The compiler thanks A.L. Gavronsky and A.S. Semenov for their help. There are no references.

TABLE OF CONTENTS:

KULAGIN, S.G.; KOVBASYUK, L.D.; DAGAYEV, M.M.; LAZAREVSKIY, V.S.; DEMIDOVICH, Ye.G.; BRONSHTEN, V.A.; YAKHONTOVA, N.S.(Leningrad); KUROCHKIN, N.Ye.; DOKUCHAYEVA, O.D.; SHCHERBINA-SAMOYLOVA, I.S.; MASEVICH, A.G.; LIPSKIY, Yu.N.; MARTYNOV, D.Ya.; ARSENT'YEV, V.V.; MOROZ, V.I.; MASEVICH, A.G.; PEREL', Yu.G.; BAKULIN, P.I., otv. red.; KULIKOV, G.S., red.; AKHLAMOV, S.N., tekhn. red.

[Astronomical calendar; yearbook.Variable part, 1962] Astronomicheskii kalendar'; ezhegodnik. Peremennaia chast', 1962. Red. kollegiia: P.I.Bakulin i dr. Moskva, Gos.izd-vo fiziko-matem. lit-ry, 1961. 259 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no.65) (MIRA 14:12)

1. Gosudarstvennoye astronomo-geodezicheskoye obshchestvo (for Kalugin, Kovbasyuk, Lazarevskiy, Demidovich). 2. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva (for Dagayev, Bronshten, Kurochkin).
(Astronomy—Yearbooks)

S/169/62/000/003/091/098
D228/D301

3,5120

AUTHOR: Bronshten, V. A.

TITLE: The nature of noctilucent clouds

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 3, 1962, 20-21, abstract 3G138 (Tr. VI Soveshchaniya po serebristym oblakam, 1959, Riga, AN LatvSSR, 1961, 141-154)

TEXT: Hypotheses on the origin of noctilucent clouds should explain the following observable facts: a) The constant height of noctilucent clouds (~82 km) and their limited altitude range (75 - 90 km); b) the latitudinal limitation of the noctilucent-cloud visibility (45 - 65°); c) the seasonal limitation of the visibility (summer months); d) the fine structure of noctilucent clouds, which resembles the structure of cirrus clouds; e) the relation of noctilucent-cloud appearances to the meteorologic conditions in the troposphere; and f) some peculiarities of the spectrum of clouds. From the point of view of these facts the dust hypothesis, which explains the appearance of noctilucent clouds by the accumulation

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of particles of meteoric or volcanic origin, meets serious objections, i.e.: 1) In order to explain the accumulation of these particles just at a height of 80 - 85 km, it is necessary to assume that at this altitude the speed of particle fall is abruptly retarded -- and this may not actually happen. 2) According to the meteoric hypothesis most of the meteoric dust should accumulate at the equator, but, as is well-known, no noctilucent clouds at all are observed below latitude 45°. 3) If noctilucent clouds were caused by meteoric dust, they should be most often observed after large meteor flows, which, generaly speaking, does not happen. 4) Dust accumulations could not have the fine structure that is observed in noctilucent clouds. 5) The dust hypothesis cannot explain the connexion of noctilucent-cloud appearances with the meteorologic conditions in the troposphere and the clouds' spectral peculiarities. The condensation (ice) hypothesis not only explains the high-altitude confinement of noctilucent clouds, their constant height, their association with meteorologic phenomena, and all the structural and spectral peculiarities, but it may also provide the key to understanding the reason for the seasonal and the latitudi-

The nature of ...

nal limitation of noctilucent-cloud appearances. According to this hypothesis the necessary conditions for the formation of ice crystals by means of the sublimation of water-vapor is the fulfillment of the disparity $E < P$, where E is the tension of saturated vapor at a given temperature T, and P is the air pressure at a given height. A sufficient condition is expressed by the disparity $E < q$, where q is the relative concentration of water-vapor. This disparity may be realized just in the height range 75 - 90 km. Analysis of air temperature data obtained from rocket observations shows that conditions for the formation of ice crystals may arise in the USSR's middle latitudes at an altitude of 80 - 85 km in the summer period. Fluctuations in the concentration q and changes in the temperature may explain the rareness of noctilucent-cloud appearances. The comparison of rocket data obtained in different latitudes of the USSR and USA compels one to consider the latitudinal difference in the minimum temperatures at a height of 80 km as being real. The seasonal effect can be explained in an analogous way. Rocket probes in the USSR and USA have exposed the presence in middle lati-

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tudes of seasonal temperature and pressure changes -- i.e. of the factors determining the conditions of existence of noctilucent clouds. The concentration and volume density of particles of noctilucent clouds can be estimated from their albedo. Calculations show that the particle concentration is about 10^{-3}-10^{-5} cm^{-3}, while the volume density is approximately 10^{-14}-10^{-16} g/cm^3. The author has previously expressed the supposition that particles of meteoritic origin, remaining in the atmosphere after the disintegration of meteorite bodies or penetrating into it as micrometeorites, can serve as sublimation nuclei, accelerating the formation of ice crystals. The particular facts of the simultaneous appearance of noctilucent clouds over a large territory or in areas remote from each other speak in favor of this point of view. Another argument in favor of this hypothesis is the appearance of noctilucent clouds after such phenomena, which are accompanied by considerable atmospheric dusting, as the volcanic eruption of Krakatoa in 1883 and the fall of the Tungus meteorite in 1908. [Abstracter's note: Complete translation.]

Card 4/4

BRONSHTEN, V.A

Excursion to Mars. Tekh.mol. no.1:33 '61. (MIRA 14:3)
(Mars(Planet))

S/026/61/000/003/005/006
A166/A127

AUTHOR: Bronshten, V.A. (Moscow)

TITLE: The Oldest Assocation of Astronomers and Geodesists

PERIODICAL: Priroda, no. 3, 1961, 85-87

TEXT: The 3rd Congress of the Vsesoyuznoye astronomo-geodezicheskoye obshchestvo (All-Union Astronomical and Geodetical Society) was held in Kiev recently to sum up the society's activity in 1955-1959. The Meteor Station of the society's Simferopol' Department, assisted by amateur astronomers from the Moscow, Ryazan', and Kuybyshev Departments, made visual, photographic and spectrographic observations of meteors as part of the International Geophysical Year program. Over 20,000 visual observations are now being processed by electronic computer. In 1957-1959 eight of the society's departments studied the optical properties of silver clouds. The observations of the Leningrad Department showed that the particles in silver clouds are about 1 micron in size but decrease as the cloud develops. The radiation of these clouds is po-

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The Oldes Assocation of ...

larized. It is hoped that such studies will help to check Professor I.A. Khvostikov's hypothesis that the clouds are composed of ice crystals which form at heights of 80 km, ie., the level of the second temperature minimum. The Riga, Estonian, Sverdlovsk, Moscow and other Departments studied movements in the clouds and noted a wave-like phase shift of bright parts corresponding to the packing of particles in the path of light rays. This may be due to variations in the undular surface of the clouds. The society's Stalingrad Expedition carried out visual observations of Mars and obtained new data on the bright white spots in the Argyr and Noaxis regions and on the dust storms in the Martian atmosphere. V.V. Bazykin, director of the Moskovskiy planetariy (Moscow Planetarium), illustrated the practical work in applying astronomy to atheist propaganda carried out by the Moscow, Odessa, Stalingrad, Khar'kov and Gor'kiy Departments of the society. S.G. Sudakov, deputy chief of the Glavnoye upravleniye geodezii i kartografii (Main Administration of

The Oldest Assocation of ...

Geodesy and Cartography), called upon the society's members to assist the introduction of progressive techniques, advanced equipment and automation into geodetic work and engineering surveys. An exhibition, arranged at the Congress, showed a model of the Krymskaya detskaya observatoriya (Crimean Children's Observatory), now under construction. There are 3 photos.

Card 3/3

38817
S/035/62/000/006/034/064
A001/A101

3,1550

AUTHOR: Bronshten, V. A.

TITLE: Bemporad's function for the Martian atmosphere

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 6, 1962, 63, abstract 6A473 ("Izv. Komis. po fiz. planet", 1961, no. 3, 92 - 95)

TEXT: In order to take more precisely into account the extinction in the Martian atmosphere, it is necessary to replace, at large phase angles, sec i in all formulae by Bemporad's function, denoted by bemp i. On the basis of the theory of this function, developed by N. M. Shtaude, for A. I. Lebedinskiy's model of the Martian atmosphere, the values of bemp z ($z = i, \xi$) have been calculated. They are compared with values of sec z and with bemp z for the Earth's atmosphere. A marked difference shows up at $z \geqslant 60^\circ$. The horizontal relative optical mass of the Martian atmosphere for models by Hess and Lebedinskiy is equal to 11 (as compared to 40 for the Earth's atmosphere).

From author's summary

[Abstracter's note: Complete translation]

Card 1/1

BRONSHTEN, V.A.

Motion of the Tunguska meteorite in the atmosphere. Meteoritika no.20:72-86 '61. (MIRA 14:5)
(Podkamennaya Tunguska Valley--Meteorites)

BROYSHLI, V.A.

The Third Congress of the All-Union Astronomical and Geodetic Society. Biul. VAGO no.29:3-10 '61. (MIRA 14:7)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.
(Astronomy, Spherical and practical--Congresses)

S/035/62/000/007/003/083
A001/A101

AUTHORS: Bronshten, V. A., Dagayev, M. M.

TITLE: Yevgeniya Yakovlevna Bugoslavskaya (1899 - 1960)

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 7, 1962, 6, abstract 7A22 ("Byul. Vses. astron.-geod. o-va", 1961 , no. 29, 57 - 59)

TEXT: Ye. Ya. Bugoslavskaya was a senior scientific worker, Doctor of physical-mathematical sciences and Professor of MGU. Principal publications of Bugoslavskaya dealt with photographic astrometry (handbook "Photographic astrometry", 1947) and with studies of solar phenomena, in particular solar corona (Doctor thesis: "Structure of solar corona", 1948). Bugoslavskaya carried out also photographic observations of binaries and other works in stellar astronomy. Of great importance was her pedagogical activity. Ye. Ya. Bugoslavskaya was an active member of the All-Union Astronomical-Geodetic Society, from 1946 to 1954 its Scientific Secretary, and since 1955 - its Vice-President. The article contains a portrait of the scientist.

Yu. Perel'

[Abstracter's note: Complete translation]

Card 1/1

BRONSHTEN, V.A.

Farfetched hypothesis of Martian satellites. Priroda 50 no.8: 79-81 Ag '61. (MIRA 14:7)

1. Moskovskiy planetariy.
(Satellites--Mars)

S/020/61/140/003/012/020
B104/B138

AUTHORS: Stanyukovich, K. P., and Bronshten, V. A.

TITLE: Velocity and energy of the Tunguska meteorite

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961, 583-586

TEXT: The energy of the meteorite that fell on June 30, 1908 in Tunguska was estimated to have been about 10^{23} erg (K. P. Florenskiy, Yu. M. Yemel'yanov et al., Meteoritika, 19 (1960); M. A. Tsikulin, v. 6, Izd. Sib. otd. AN SSSR, 1959; Ye. L. Krinov, Tungusskiy meteorit, Izd. AN SSSR, 1949). V. A. Bronshten estimated the mass of the meteor at some 10^5-10^7 tons, its initial velocity v_0 to be about 11-46 km/sec, and its aerodynamic drag to be $c_x/2 = 0.5$-2 (Meteoritika, 20, (1961)). V. G. Fesenkov (Meteoritika, 12, 72 (1955)) using quite a different method found a mass of 10^6-10^7 tons. Z. Ceplecha (Bull. Astr. Inst. of Czechoslovakia, 11, no. 1 (1959)) showed that for large meteors the aerodynamic drag is $c_x/2 = 0.43$. Taking this value for the meteor studied, the authors ob-

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Velocity and energy of the ...

tained for an initial velocity of 35-43 km/sec, an initial mass 10^6 tons, a final velocity of 30 km/sec, and a final mass of $2 \cdot 10^4$ tons. The temperature of the shock wave front which the meteor produced when entering the Earth's atmosphere was calculated to have been 70,000 to 100,000°C. In this connection the authors point out an error in a work by A. V. Zolotov (DAN, 136, no. 1 (1961)). The heat balance equation for the meteor is established. By means of this equation it is demonstrated that an iron or a stone meteor of the mass in question, when entering into the Earth's atmosphere, gains heat down to an altitude of about 18 km, after which it begins to cool. According to I. S. Astapovich and Whipple, the core of a comet consists of a conglomerate of solid methane and ammonium with stone lumps and powder. The energy which such an ice block of 10^3 cm radius and 60 km/sec speed loses due to evaporation is less than the energy the body acquires from the shock wave. This leads to a rapid heating of the interior. About 30% of the total mass is vaporized in 0.2 sec. When this process is fast enough, the vaporized particles may form a strong spherical shock wave that will be like a protracted explosion. At $v = 30$ km/sec, the strength of this process is $2 \cdot 10^{13}$ erg/g·sec. This value has the order of magnitude of the estimates previously mentioned

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Velocity and energy of the ...

(K. P. Stanyukovich, and V. P. Shalimov, Meteoritika, 20, (1961)). V. G. Fesenkov (Meteoritika, 22 (in print)) assumes that the comet core consists of closely packed small bodies. In this case, each of the small bodies would cause a shock wave, so that the comet would be destroyed before reaching the Earth's surface. A. V. Voznesenskiy and L. A. Kulik are mentioned. Academician V. G. Fesenkov is thanked for discussions. There are 1 figure, 1 table, and 13 Soviet-bloc references.

ASSOCIATION: Komitet po meteoritam Akademii nauk SSSR (Committee for Meteorites of the Academy of Sciences USSR)

PRESENTED: May 8, 1961, by V. G. Fesenkov, Academician

SUBMITTED: May 5, 1961

Card 3/3

NAVASHIN, Mikhail Sergeyevich; MAKSUTOV, D.D., otv. red.; BRONSHTEYN, V.A., red.

[Instructions for constructing a reflecting telescope] Instrutsiia i izgotovleniiu samodel'nogo teleskopa-reflektora. Moskva, Izd-vo Akad. nauk SSSR, 1962. 49 p. (MIRA 15:6)

1. Chlen-korrespondent Akademii nauk SSSR (for Maksutov).
(Telescope, Reflecting)

MARTYNOV, D.Ya., prof., otv. red.; DUBNEV, A.I., red.; IZOTOV, A.A., red.; POPOV, P.I., red.; FEDYNSKIY, V.V., red.; BRONSHTEN, V.A., red.; RAKHLIN, I.Ye., red.izd-va; LAUT, V.G., tekhn. red.

[Transactions of the Congress of the All-Union Astronomical and Geodetic Society] Trudy tret'yego s"ezda Vsesoyuznogo astronomo-geodezicheskogo obshchestva. Moskva, Izd-vo Akad. nauk SSSR, 1962. 257 p. (MIRA 15:2)

1. S"yezd Vsesoyuznogo astronomo-geodezicheskogo obshchestva, 3rd, Kiev, 1960. 2. Prezident Vsesoyuznogo astronomo-geodezicheskogo obshchestva(for Martynov).
(Astronomy—Congresses) (Geodesy—Congresses)

ASTAPOVICH,I.S.; BAKULIN,P.I.; BAKHAREV,A.M.; BRONSHTEN,V.A.; BUGOSLAVSKAYA, N.Ya.[deceased]; VASIL'YEV,O.B.; GRISHIN,N.I.; DAGAYEV,M.M.; DUBROVSKIY,K.K.[deceased]; ZAKHAROV,G.P.; ZOTKIN,I.T.; KRAMER,Ye.N.; KRIKOV,Ye.L.; KULIKOVSKIY,P.G.; KUNITSKIY,R.V.; KUROCHKIN,N.Ye.; ORLOV,S.V.[deceased]; POPOV,P.I.; PUSHKOV, N.V.; RYBAKOV, A.I.; RYABOV,Yu.A.; SYTINSKAYA, N.N.; TSESEVICH, V.P.; SHCHIGOLEV,B.M.; VORONTSOV-VEL'YAMINOV,B.A.,red.; POLOMAREVA,G.A., red.; KRYUCHKOVA, V.N., tekhn. red.

[Astronomical calender; permanent part] Astronomicheskii kalendar'; postoiannaia chast'. Izd.5., polnost'iu perer. Otv. red. P.I.Bakulin. Red.kol.V.A.Bronshten i dr. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1962. 771 p. (MIRA 15:4)

(Astronomy--Yearbooks)

BRONSHTEN, V.A.

Circumstances of the fall of the Kaalijarv meteorite. Meteoritika no.22:42-46 '62. (MIRA 15:8)

(Saaremaa--Meteorites)

S/556/62/000/030/005/005
D218/D308

AUTHOR: Bronshten, V. A.

TITLE: On the circumstances of the fall of the Kaalijärv meteorite

SOURCE: Vsesoyuznoye astronomo - geodezicheskoye obshchestvo. Byulleten'. no. 30 (37), Moscow, 1962, 39-44

TEXT: The aim of this work was to use all the data on the Kaalijärv meteorite craters in order to reproduce the circumstances of the fall of this meteorite. The meteorite was apparently of the iron variety and it is estimated that its initial mass was between 400 and 10,000 tons, with a most probable value around 1,000 tons. The final mass was between 20 and 80 tons and the velocity and angle of incidence were 10 - 20 km/sec and 45° respectively. An examination of the distribution of the associated craters showed that the meteorite disintegrated into fragments at a low altitude (of the order of 5 - 10 km). The fragments separated from the main mass of the meteorite at practically the same velocity as the

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latter, and the total mass of the fragments was 18 - 20% of the main mass. The analysis is based on similar considerations to those used by the present author in connection with the Tungusska meteorite (Meteoritika, no. XX, 1960). There are 2 figures and 2 tables.

ASSOCIATION: Moskovskiy planetariy (Moscow Planetarium)

SUBMITTED: November, 1960

BRONSHTEN, V.A.

Photographic photometry of Mars at large phase angles. Biul.VAGO no.32:15-22 '62. (MIRA 15:11)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.
(Mars (Planet)) (Photometry, Astronomical)

4216h

S/203/62/002/001/015/019
I023/I223

AUTHOR: Bronshton,V.A.

TITLE: Phenomena accompanying the flight of large meteorites through the atmosphere

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.1, 1962, 126-133

TEXT: There is a detailed theory of phenomena accompanying the flight of small meteors (diameter less than 1 cm) through the atmosphere. The theory for the flight of large meteorites is not developed enough. Different authors assume values of Γ (resistance coefficient) differing by a factor of almost ten, while the only experimental determination gives $\Gamma = 0.43 - 1.20$. It is shown that below 80km all meteorites move in the condition of a continuous flow, regular meteors - in the condition of slip. The structure of the shock wave, produced by the meteorite, is investigated. As a result of energy transfer of the molecules to internal degrees of freedom, and also of dissociation an ionization, the temperature behind the wave front falls very quickly to the

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equilibrium value T_1, which is 2 to 10 times smaller than the temperature at the front of the shock wave. At large heights, because of the small number of collisions, equilibrium ionization is not reached and the temperature between the wave front and the meteorite is always higher than T_1. Behind the wave front the electron and the ion temperatures are always different ($T_i > T_e$), but they rapidly become equal. The time of equalization is 2-3 orders of magnitude less than the ionization relaxation time. Therefore T_i is always decreasing, and T_e increasing until a maximum, and after this maximum it begins to decrease. Four different mechanisms of heat transfer to the meteorite are investigated: Convection, radiation, electronic and ionic heat conduction. The main mechanism is convection, but at high temperatures radiation and electronic conduction must be taken into account. Only for a temperature of 300000°C will radiation be equal to convection. The mass of the meteorite is reduced both by evaporation and